

Micro-Credentials as a Response to Out-of-Field Mathematics Teaching: Emerging Evidence

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Australia continues to face a persistent shortage of qualified secondary mathematics teachers, resulting in significant levels of out-of-field teaching where teachers without formal mathematics qualifications deliver mathematics instruction. Research and national workforce reports indicate that out-of-field teaching can limit curriculum depth, constrain pedagogical choices, and reduce teacher confidence and self-efficacy in mathematics instruction (Australian Mathematical Sciences Institute, 2024). These issues contribute to disparities in student learning opportunities and highlight an urgent need for targeted, high-quality professional learning for out-of-field mathematics teachers.

Micro-credentials and other structured upskilling programs have emerged as flexible ways to strengthen teachers' content and pedagogical knowledge. Evidence indicates that well-designed professional learning featuring active learning, strong content focus, classroom-embedded practice, and sustained support can positively influence teacher beliefs, confidence, and instructional practices (Australian Council for Educational Research, 2021; Goos et al., 2023). However, empirical evidence remains limited regarding the ways mathematics-focussed micro-credentials affect the experiences and instructional approaches of out-of-field teachers in Australia.

This project examines how mathematics micro-credentials and related professional learning influence out-of-field teachers' confidence, beliefs, and classroom practice. Using semi-structured interviews with teachers across Australia who have completed mathematics upskilling programs, the study explores perceived changes in content and pedagogical knowledge, shifts in instructional approaches, ongoing challenges, and the supports needed to sustain improvement. The aim is to generate evidence that informs future program design, strengthens support for out-of-field mathematics teachers, and contributes to national efforts to address workforce capacity. The presentation will share initial findings, including early themes related to teacher confidence, self-efficacy, and pedagogical change following engagement in mathematics micro-credentials. It will also highlight emerging insights into the strengths and limitations of current upskilling models and their implications for long-term professional growth.

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